Zebra®
TLP & LP 2844-Z™
Desktop Printers

User Guide

Part #980410-001 | Rev. B

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Product Improvements

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FCC Compliance Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different than that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

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Battery

The main printed circuit board assembly includes a three-volt lithium battery.

CAUTION—Risk of explosion if battery is replaced with an incorrect type.

Note—Recycle batteries according to local your guidelines and regulations.

Shock Hazard

The printer and power supply should never be operated in a location where either one can get wet. Personal injury could result.

Media and Ribbon

Always use high-quality, approved labels, tags and ribbons. If adhesive backed labels are used that DO NOT lay flat on the backing liner, the exposed edges may stick to the label guides and rollers inside the printer, causing the label to peel off from the liner and jam the printer. Permanent damage to the print head may result if a non-approved ribbon is used as it may be wound incorrectly for the printer or contain chemicals corrosive to the print head. Approved supplies can be ordered from your dealer.

If labels or ribbon run out while printing, DO NOT turn the power switch OFF (0) while reloading or data loss may result. The printer automatically restarts after you load a new label or ribbon roll.

Static Discharge

The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage or destroy the print head or electronic components used in this device. DO NOT TOUCH the print head or the electronic components under the top cover.

Thermal Printing

The print head becomes hot while printing. To protect from damaging the print head and risk of personal injury, avoid touching the print head. Use only the cleaning pen to perform maintenance.

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This section describes what you get in your shipping box and provides an overview of printer parts. This section also has procedures that describe how to open and close the printer and report any problems.

Hello!

Thank you for choosing a Zebra® 2844-Z™ printer, a high-quality on-demand printer manufactured by the industry leader in quality, service, and value—Zebra Technologies Corporation. For over 25 years, Zebra Technologies Corporation has provided customers with the highest caliber of products and support.

There are two models of printer:

- LP—The LP 2844-Z printer provides direct-thermal printing.
- TLP—The TLP 2844-Z printer provides thermal-transfer printing (which uses ribbon) and direct-thermal printing.

This manual provides all of the information you will need to operate your printer on a daily basis. To create label formats, refer to the *ZPL II Programming Guide*. This guide is available by contacting your distributor or Zebra Technologies Corporation.

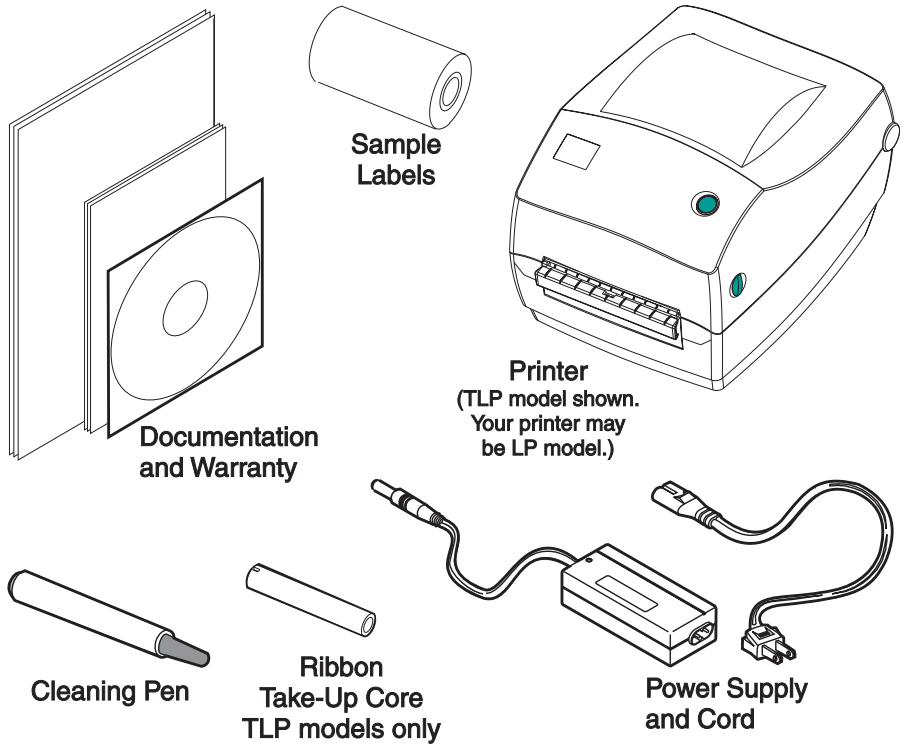
NOTE: Many printer settings may also be controlled by your printer's driver or label preparation software. Refer to the driver or software documentation for more information.

Zebra 2844-Z printers, when connected to a host computer, function as a complete system for printing labels and tags.

Many illustrations in this manual show the TLP printer. While there are some physical differences between them, you can operate both printers using the same procedures.

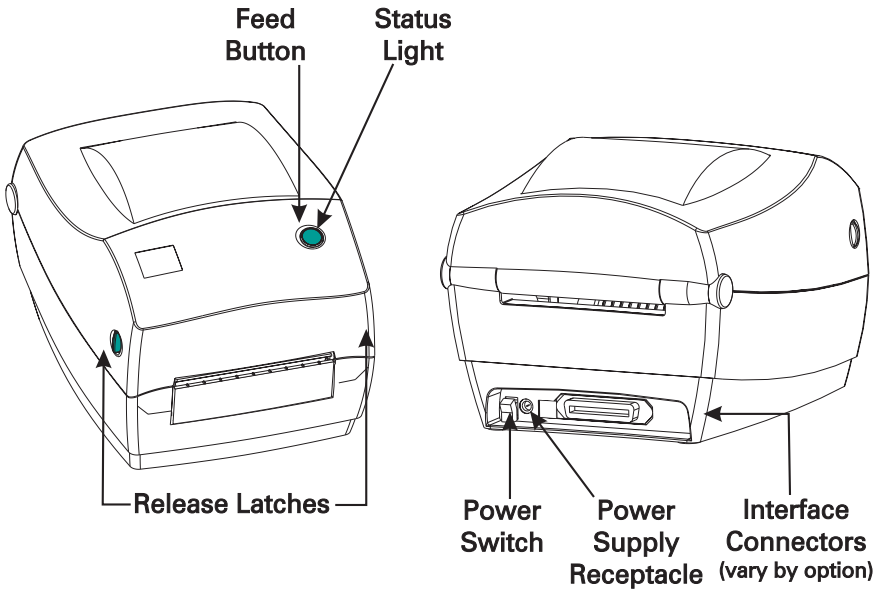
What's in the Box?

Save the carton and all packing materials in case you need to ship or store the printer later. After unpacking, make sure you have all parts. Follow the procedures for inspecting the printer to familiarize yourself with printer parts so you can follow the instructions in this book.

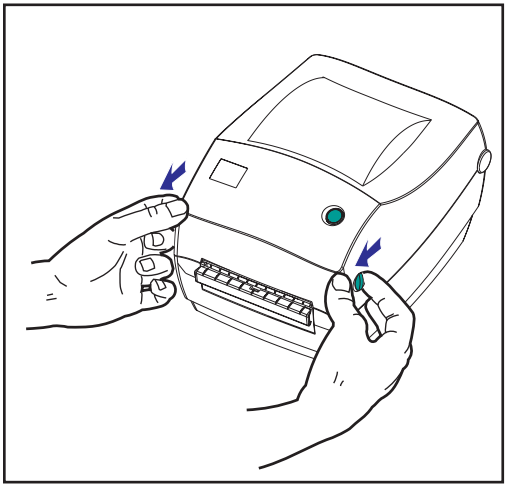


Inspecting the Printer

Look at the outside of the printer and make sure that all parts are present.



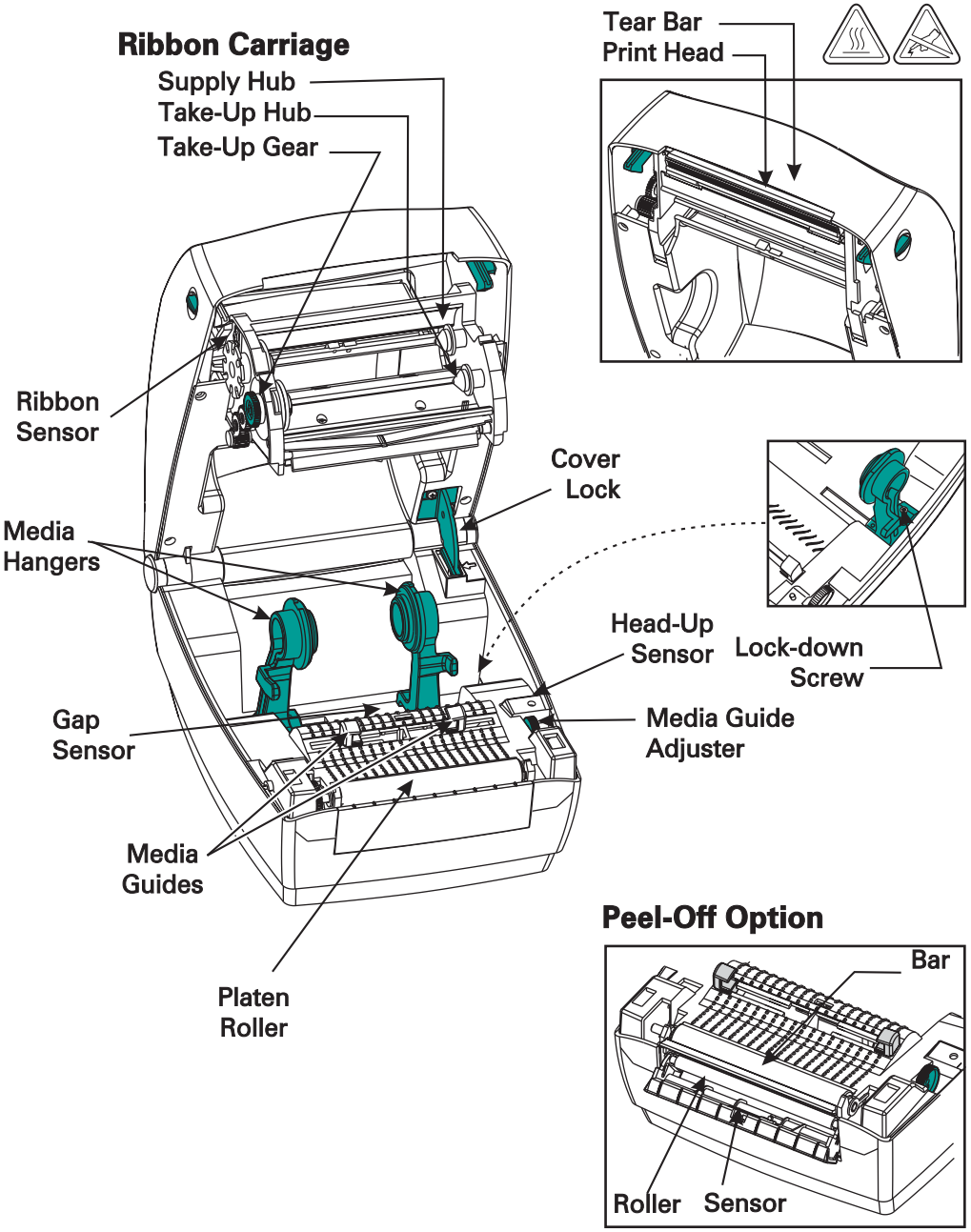
Opening the printer



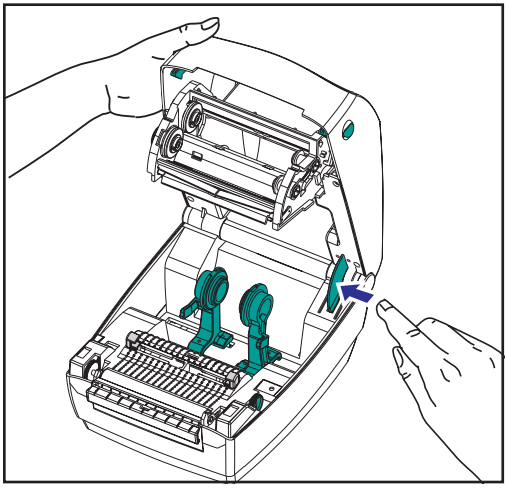
To access the media compartment, you must open the printer.

Pull the release levers towards you and lift the cover.

After opening the printer, check the media compartment.

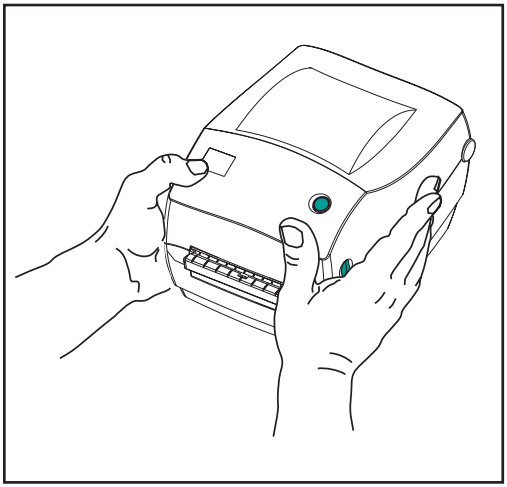


Closing the printer



For TLP printers, hold the top cover and press the “kick-stand” cover lock to release.

Lower the top cover. The ribbon carriage automatically folds up into place.



Press down until the cover snaps closed.

Reporting Damage

If you discover damage or missing parts:

- Immediately notify and file a damage report with the shipping company. *Zebra Technologies Corporation is not responsible for any damage incurred during shipment of the printer and will not cover the repair of this damage under its warranty policy.*
- Keep the carton and all packing material for inspection.
- Notify the authorized reseller

Related Documentation

Depending on the options you have ordered or choose to use with your new printer, you will find the following documents helpful:

- *ZPL II® Programming Guide*
- *Universal Serial Bus Specification* available from the USB Implementation Forum.
- *ZebraNet® PrintServer II™ for Ethernet Networks Installation and Operation Guide* (customer order number 46716L)

This section describes how to set up your printer for the first time and use the most common operating procedures for loading media in tear-off mode and loading ribbon.

Modes of Printing

You can operate this printer in different modes:

- Standard tear-off mode allows you to tear off each label (or a strip of labels) after it is printed.
- In optional peel-off mode, the backing material is peeled away from the label as it is printed. After this label is removed, the next one is printed.
- In optional liner-free mode, labels have no backing. This option is only available with the direct-thermal LP model modified with a special platen.
- In optional cutter mode, an attached unit cuts through the media.

The printer typically uses roll media, but you can use fan-fold or other continuous media as well.

For procedures to use optional modes and features, refer to the Operation and Options section.

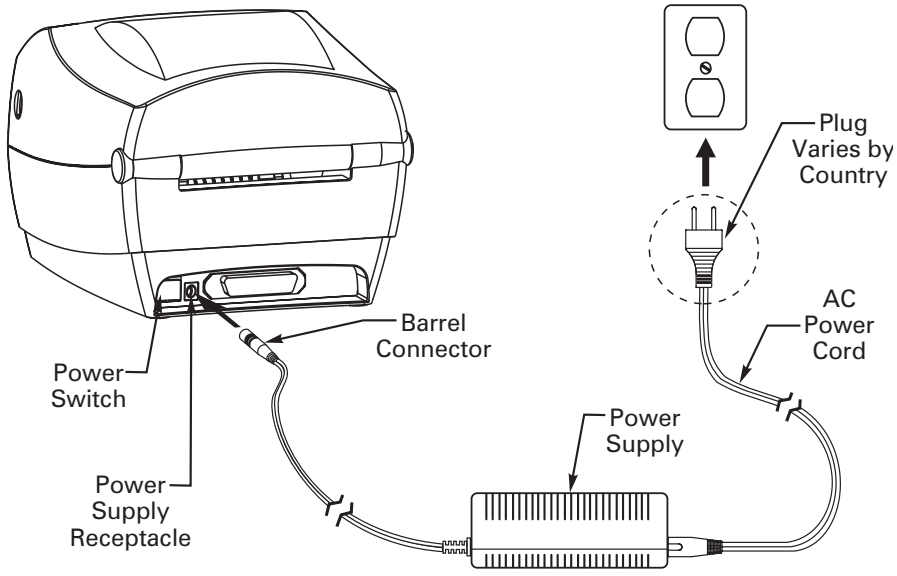
Attaching Power Supply

Check the power supply to make certain it is appropriate for your input voltage.

Warning: Use the Zebra-supplied power supply that came with your printer.

Never operate the printer and power supply in an area where they can get wet. Serious personal injury could result!

1. Make sure the power switch is in the off position (down).
2. The DC power supply has a barrel connector on one end that must be inserted into the power supply receptacle on the back of the printer.
3. Insert the separate AC power cord into the power supply.
4. Plug the other end of the cord into an appropriate AC electrical outlet.

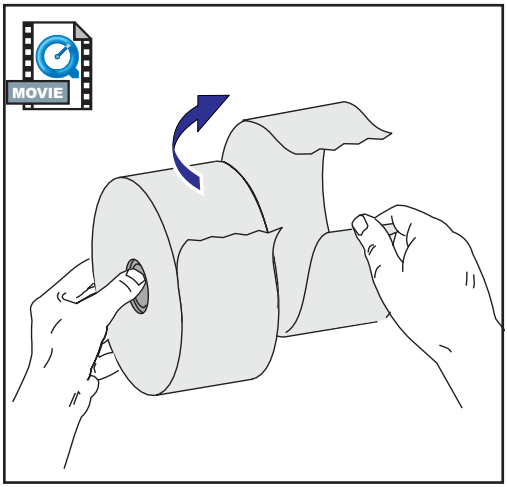


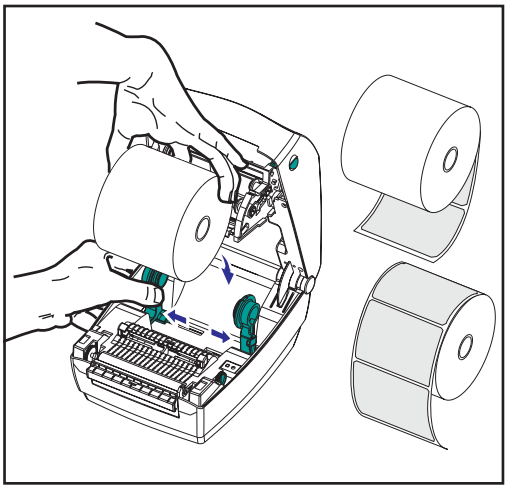
Loading Roll Media

When you load media, you must place the roll on the media hangers and then adjust the media guides.

You must use the correct media for the type of printing you require. When printing without a ribbon, you must use direct thermal media. When using ribbon, you must use thermal transfer media. The printer's ribbon sensor detects motion of the supply spindle.

Placing the Roll in the Media Compartment

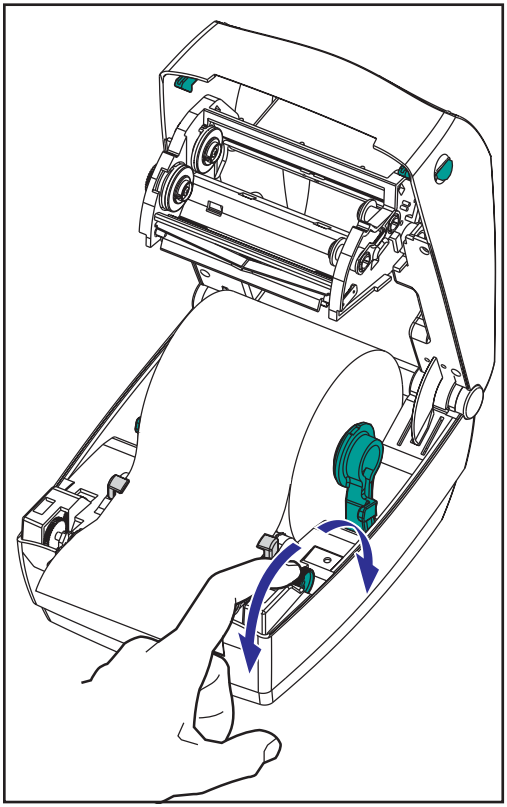




Whether your roll media is inside or outside wound you load it into the printer the same way.

1. Open the printer. Remember that you need to pull the release levers toward the front of the printer.
2. Remove the outside length of media. During shipment, the roll may become dirty when handled or dusty when stored. Removing the outside length avoids dragging adhesive or dirty media between the print head and platen.
3. Separate and hold open the media hangers.
4. Orient the media roll so that its printing surface will be up as it passes over the platen.
5. Lower the roll between the hangers and close them onto the core.

Adjusting the Guides



The adjustable guides direct the media toward the platen and print head.

1. Open the media guides by turning the guide adjuster knob to the rear.

2. Thread the media through the guides.

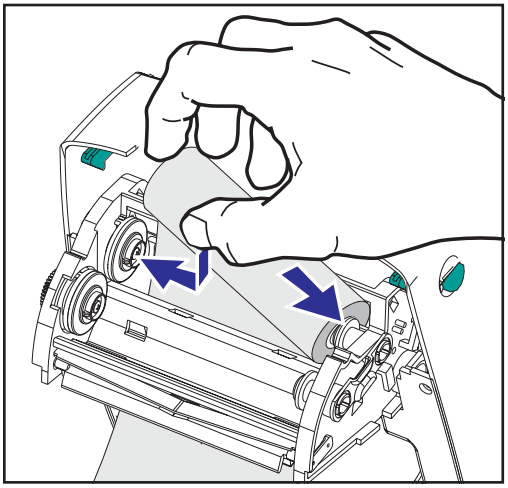
3. Close the media guides by turning the guide adjuster knob to the front. They should just touch, but not restrict, the edges of the media.

4. Unless you need to load ribbon, close the top cover. Remember that you need to release the cover lock, lower the top cover, and press down until the latches snap into place.

Loading Ribbon

You must use thermal transfer media (accepts wax and/or resin transferred off a ribbon) when you use a ribbon in a TLP model printer. When loading ribbon, you install the supply and take-up rolls, then tighten the ribbon on the carriage.

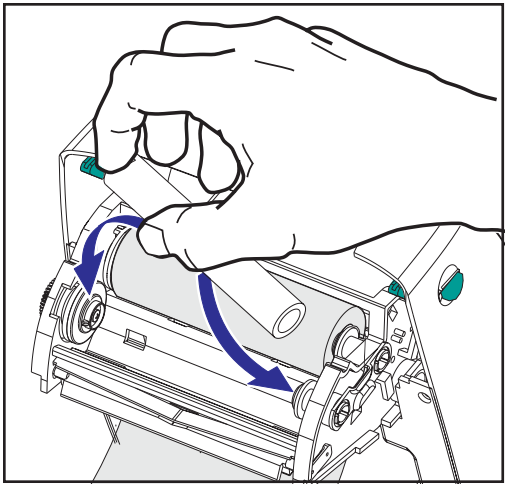
Install the Ribbon Supply Roll



Before following these steps, prepare the ribbon by removing its wrapping and pulling its adhesive strip free.

1. Thread the ribbon through the carriage.
2. Press the right side onto the supply hub.
3. Align the notches on the left side and mount onto the spokes of the left hub.

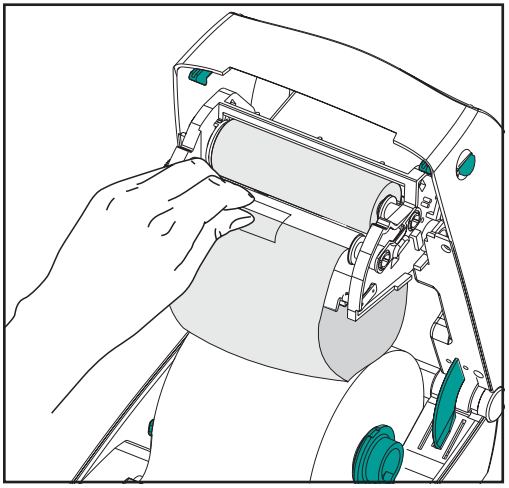
Install the Take-Up Core



1. Press the right side onto the take-up hub.
2. Align the notches on the left side and mount onto the spokes of the left hub.

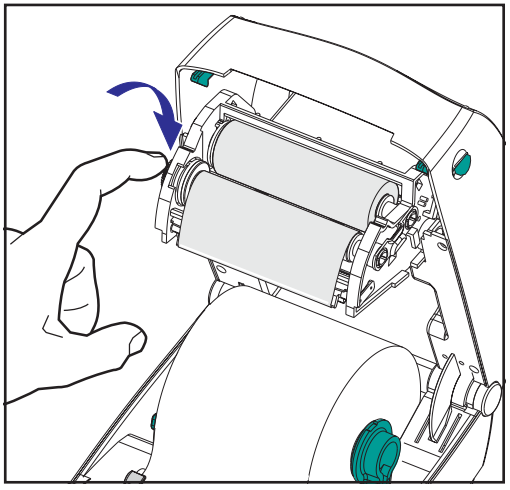
You can find your first ribbon take-up core in the packing box. Subsequently, use the empty supply core to take up the next roll of ribbon.

Attach and Tighten the Ribbon



You must align the ribbon so that it will be taken straight onto the core.

1. Attach the ribbon to the take up core. Use the adhesive strip on new rolls; otherwise, use tape.



2. Turn the ribbon take-up gear counter-clockwise (top moves toward rear) to remove slack from the ribbon.

3. Close the top cover. Remember that you need to release the cover lock, lower the top cover, and press down until the latches snap into place.

Auto Calibration

NOTE: If you are using pre-printed labels, pre-printed label backing, or continuous media, see “Manual Calibration” on page 42.

An auto calibration is performed when the printer is turned on (if media is loaded) or after a media error is cleared. When it is auto calibrating, the printer sets the sensor levels for, and determines the length of, the label you are using.

If the status light flashes red, refer to “Manual Calibration” on page 42.

Operator Controls

Power Switch

Press *up* to turn **ON** or *down* to turn **OFF** the printer.

CAUTION: The power should be turned off before connecting or disconnecting the communications and power cables.

Feed Button

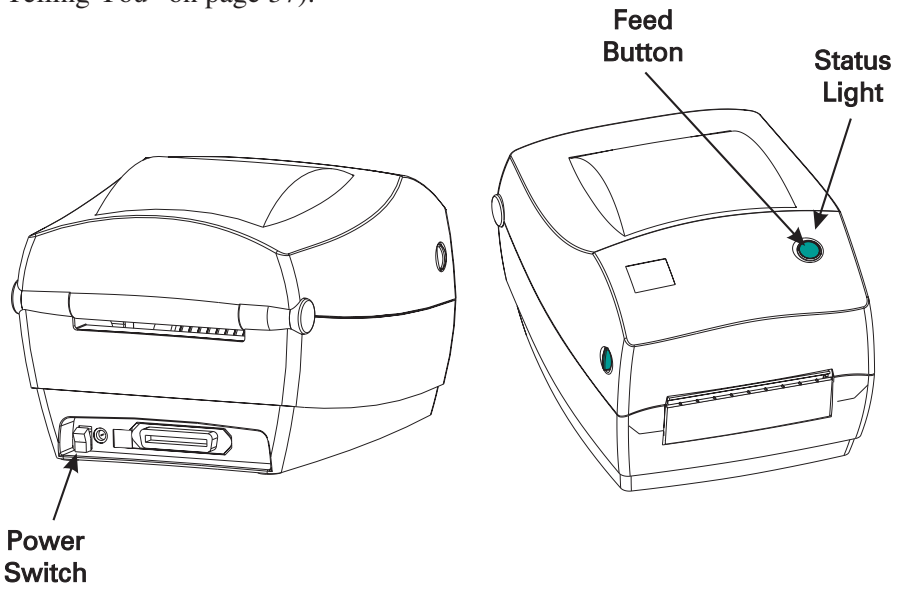
Forces the printer to feed one blank label.

Takes the printer out of a "pause" condition. (The printer is put into "pause" by either a ZPL II command or an error condition.) See "What the Status Light is Telling You" on page 37.

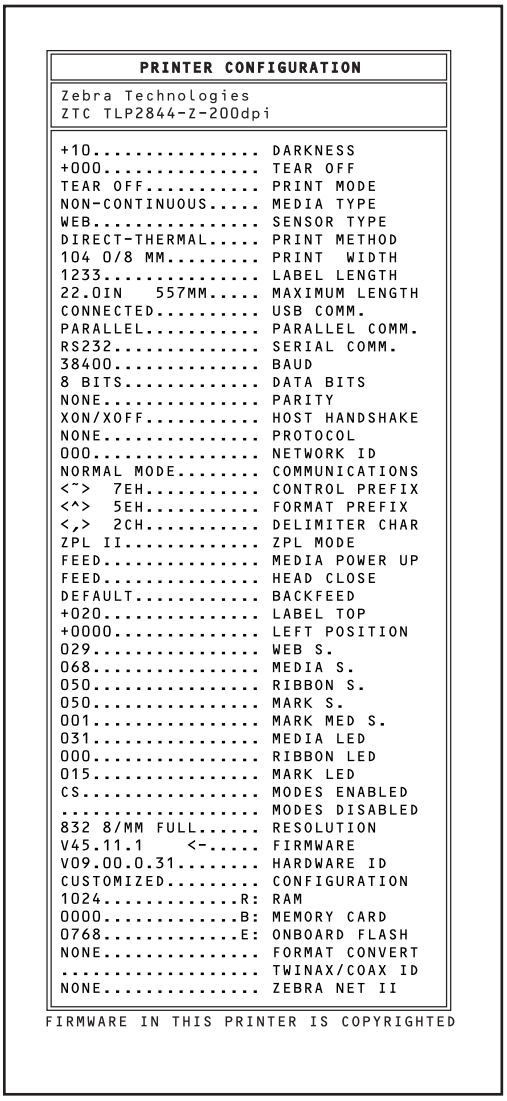
Use the Feed button for printer setup and status (see "Feed Button Modes" on page 45).

Status Light

Functions as a printer operational indicator (see "What the Status Light is Telling You" on page 37).



Printing a Test Printout



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PRINTER CONFIGURATION

Zebra Technologies
ZTC TLP2844-Z-200dpi

+10.............. DARKNESS
+000.............. TEAR OFF
TEAR OFF.......... PRINT MODE
NON-CONTINUOUS..... MEDIA TYPE
WEB............... SENSOR TYPE
DIRECT-THERMAL..... PRINT METHOD
104 0/8 MM........ PRINT  WIDTH
1233.............. LABEL LENGTH
22.0IN   557MM..... MAXIMUM LENGTH
CONNECTED......... USB COMM.
PARALLEL.......... PARALLEL COMM.
RS232............. SERIAL COMM.
38400............. BAUD
8 BITS............ DATA BITS
NONE.............. PARITY
XON/XOFF.......... HOST HANDSHAKE
NONE.............. PROTOCOL
000............... NETWORK ID
NORMAL MODE....... COMMUNICATIONS
<~>  7EH.......... CONTROL PREFIX
<^>  5EH.......... FORMAT PREFIX
<,>  2CH.......... DELIMITER CHAR
ZPL II............ ZPL MODE
FEED.............. MEDIA POWER UP
FEED.............. HEAD CLOSE
DEFAULT........... BACKFEED
+020.............. LABEL TOP
+0000............. LEFT POSITION
029............... WEB S.
068............... MEDIA S.
050............... RIBBON S.
050............... MARK S.
001............... MARK MED S.
031............... MEDIA LED
000............... RIBBON LED
015............... MARK LED
CS................ MODES ENABLED
.................. MODES DISABLED
832 8/MM FULL..... RESOLUTION
V45.11.1    <-.... FIRMWARE
V09.00.0.31....... HARDWARE ID
CUSTOMIZED........ CONFIGURATION
1024............R: RAM
0000............B: MEMORY CARD
0768............E: ONBOARD FLASH
NONE.............. FORMAT CONVERT
.................. TWINAX/COAX ID
NONE.............. ZEBRA NET II

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Before you connect the printer to your computer, make sure that the printer is in proper working order. You can do this by printing a configuration printout.

1. Make sure the media is properly loaded and the top cover of the printer is closed. Then, turn the printer power on if you have not already done so.

2. When the status light is solid green, press and hold the feed button until the status light flashes once.

3. Release the feed button. The printer prints configuration information on the available media.

If you cannot get this printout, refer to Troubleshooting on page 37.

Hooking Up the Printer and Computer

Your printer will have one of two combinations of interfaces:

- Universal Serial Bus (USB), parallel and serial
- USB, ethernet (using the Internal ZebraNet® PrintServer II™) and serial

Each specific interface option—USB, parallel, ethernet, serial—is discussed individually.

You must supply the required interface cable for your application.

CAUTIONS:Keep the power switch in the OFF position when attaching the interface cable.

The power supply barrel connector must be inserted into the power supply receptacle on the back of the printer before connecting or disconnecting the communications cables.

This printer complies with FCC "Rules and Regulations," Part 15, for Class B Equipment, using fully shielded six-foot data cables. Use of longer cables or unshielded cables may increase radiated emissions above the Class B limits.

Interface Cable Requirements

Data cables must be of fully shielded construction and fitted with metal or metalized connector shells. Shielded cables and connectors are required to prevent radiation and reception of electrical noise.

To minimize electrical noise pickup in the cable:

Keep data cables as short as possible (6' [1.83 m] recommended).

Do not tightly bundle the data cables with power cords.

Do not tie the data cables to power wire conduits.

USB Interface Requirements

Universal Serial Bus (version 1.1) provides a high-speed interface that is compatible with your existing PC hardware. USB's "plug and play" design makes installation easy. Multiple printers can share a single USB port/hub.

Parallel Interface Requirements

The required cable (IEEE 1284-compliant is recommended) must have a standard 36-pin parallel connector on one end, which is plugged into the parallel port located on the back of the printer. The other end of the parallel interface cable connects to the printer connector at the host computer.

For pinout information, refer to page 48.

Ethernet Interface Requirements

Ethernet provides a powerful networking capability that can be of use in a variety of internet/intranet printing solutions. After you load media and close the top cover, you can press the test button next to the connector on the rear of the printer to get an ethernet configuration label.

You can refer to the *ZebraNet® PrintServer II™ for Ethernet Networks Installation and Operation Guide* (part number 46716L) for details regarding this interface.

Serial Interface Requirements

The required cable must have a nine-pin "D" type (DB-9P) male connector on one end, which is plugged into the mating (DB-9S) serial port located on the back of the printer. The other end of this signal interface cable connects to a serial port at the host computer. Depending on the specific interface requirements, this will most likely be a null modem cable.

For pinout information, refer to page 50

Communicating with the Printer

Universal Serial Bus (USB) Communications

The printer is a terminal device when using a universal serial bus interface. You can refer to the Universal Serial Bus Specification for details regarding this interface.

Parallel Communications

When using the parallel port, typically there is no setup is required once the cable is plugged in. If you should encounter any problems, consult the user's guide that came with your computer.

Internal ZebraNet® PrintServer II™ Communications

You can refer to the *ZebraNet® PrintServer II™ for Ethernet Networks Installation and Operation Guide* (part number 46716L) for details regarding this interface.

Serial Communications

Serial communications between the printer and the host computer can be set by either autobaud synchronization or the ^SC command.

Autobaud

Autobaud synchronization allows the printer to automatically match the communication parameters of the host computer. To autobaud:

1. Press and hold the feed button until the green status LED flashes once, twice, and then three times.
2. While the status LED flashes, send a ZPL II format to the printer.
3. When the printer and host are synchronized, the LED changes to solid green. (No labels will print during autobaud synchronization.)

^SC Command

Use the Set Communications (^SC) command to change the communications settings on the printer.

1. With the host computer set at the same communications settings as the printer, send the ^SC command to change the printer to the desired settings.
2. Change the host computer settings to match the new printer settings.

Refer to the *ZPL II Programming Guide* for more information about this command.

Defaulting the Serial Parameters

To reset the communications parameters on the printer to the factory defaults (9600 baud, 8 bit word length, no parity, 1 stop bit, and XON/XOFF), do the following:

1. Press and hold the feed button until the green status LED flashes once, twice, and then three times.
2. While the status LED rapidly flashes amber and green, press the feed button.

Adjusting the Print Width

Print width must be calibrated when:

- You are using the printer for the first time.
- There is a change in the width of the media.

Print width may be set by way of the five-flash sequence in "Feed Button Modes" (see page45) or refer to the Print Width (^PW) command (consult your *ZPL II Programming Guide*).

Adjusting the Print Darkness

The relative darkness setting is controlled by either the six-flash sequence in "Feed Button Modes" (see page 45) or the Set Darkness (~SD) ZPL II command (follow the instructions in the *ZPL II Programming Guide*).

Adjusting the Print Speed

Print quality is influenced by print speed and the media you are using. Only by experimenting will you find the optimal mix for your application.

If you find that the print speed needs to be adjusted, refer to the Print Rate (^PR) command in the *ZPL II Programming Guide*.

This section helps you get the most from your printer.

You must use programming to control many of the printer's functions. A few examples:

- The ~JL command controls label length.
- The ^XA^MTD^XZ command changes the printing mode to direct thermal; the ^XA^MTT^XZ command changes the printing mode to thermal transfer.
- The ^XA^JUS^XZ command saves the new settings to flash memory.

For detailed information about creating labels using ZPL II, refer to the *ZPL II Programming Guide* or visit our web site at www.zebra.com.

To improve print quality, changing both print speed and density may be required to achieve the desired results. Your application's printer driver provides control of the speed and heat (density).

Thermal Printing

The print head becomes hot while printing. To protect from damaging the print head and risk of personal injury, avoid touching the print head. Use only the cleaning pen to perform maintenance.

The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage or destroy the print head or electronic components used in this device. You must observe static-safe procedures when working with the print head or the electronic components under the top cover.

You must use the correct media for the type of printing you require. When printing without a ribbon, you must use direct thermal media. When using ribbon, you must use thermal transfer media. The printer's ribbon sensor detects motion of the supply spindle.

Replacing Supplies

If labels or ribbon run out while printing, leave the printer power on while reloading (**data loss results if you turn off the printer**). After you load a new label or ribbon roll, the printer flashes double-green until you press the Feed button to restart .

Always use high quality, approved labels, tags and ribbons. If adhesive backed labels are used that don't lay flat on the backing liner, the exposed edges may stick to the label guides and rollers inside the printer, causing the label to peel off from the liner and jam the printer. Permanent damage to the print head may result if a non-approved ribbon is used as it may be wound incorrectly for the printer or contain chemicals corrosive to the print head. Approved supplies can be ordered from your dealer.

Adding a New Transfer Ribbon

If ribbon runs out in the middle of a print job, the indicator lights orange and the printer waits for you to add a fresh roll.

1. Keep the power on as you change ribbon.
2. Open the top cover, then cut the used ribbon so you can remove the cores.
3. Load a new ribbon roll. If necessary, review the Ribbon Loading steps.
4. Close the top cover.
5. Press the Feed button to restart printing.

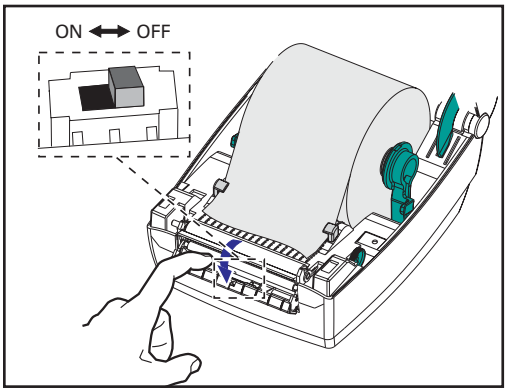
Replacing a Partially Used Transfer Ribbon

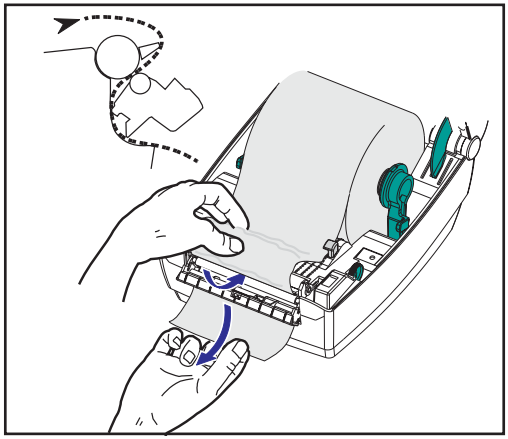
To remove used transfer ribbon, perform the following steps.

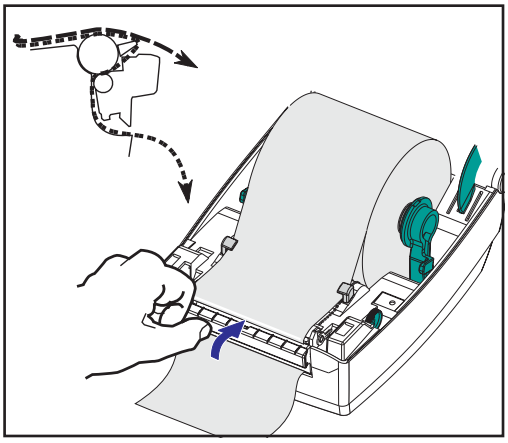
1. Cut the ribbon from the take-up roll.
2. Remove the take-up roll and discard used ribbon.
3. Remove the supply roll and tape the end of any fresh ribbon to prevent it from unwrapping.

When reinstalling a partially used supply roll, tape the cut end onto the empty take-up roll.

Printing in Peel-Mode







The optional dispenser allows you to print in "peel-mode" where the label backing follows a different path and the labels are presented one at a time for subsequent placement.

Before using peel-mode, you must send the programming commands

^XA ^MMP ^XZ

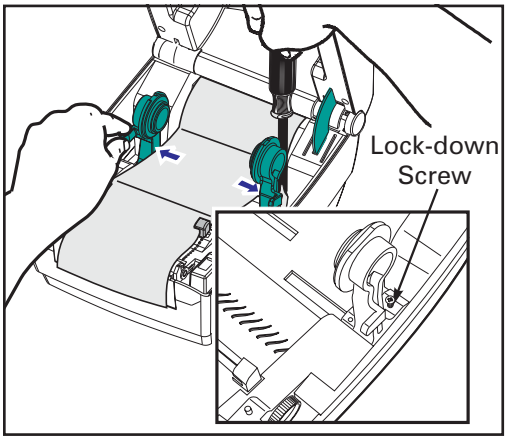
^XA ^JUS ^XZ

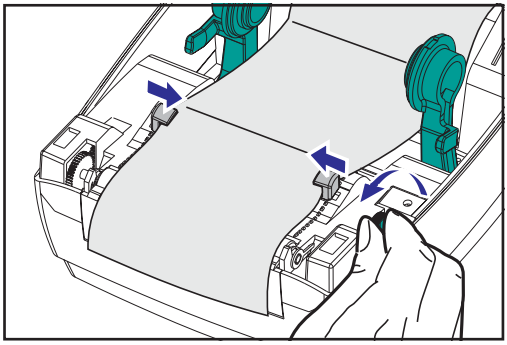
to the printer. Refer to your ZPL II Programmer's Manual.

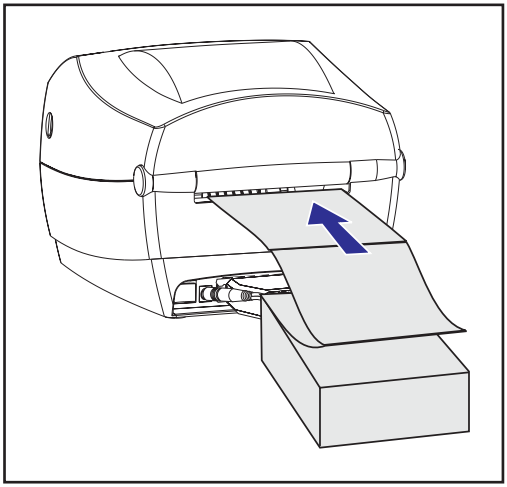
1. Remove several labels from the backing material.
2. Open the top cover.
3. Open the dispenser door.
4. Switch on the label-taken sensor.
5. Insert the backing in front of the peel bar and behind the peel roller.
6. Close the dispenser door.
7. Close the top cover.
8. Press the Feed button to advance the label.

During the print job, the printer will peel off the backing and present a single label. Take the label from the printer so it will print the next label.

Printing on Fan-Fold Media







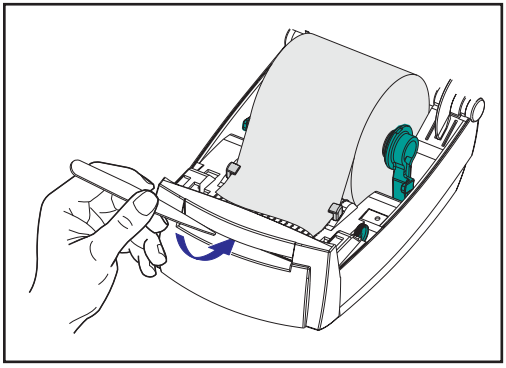
Printing on fan-fold media requires you to set both the media hangers and the media guides in position.

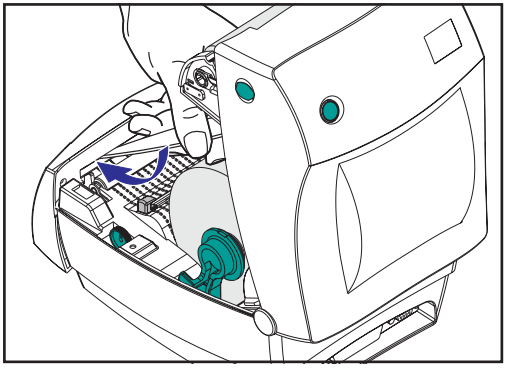
1. Open the top cover.
2. With a sample of your media, adjust the media hangers to the width of the media. The hangers should just touch, but not restrict, the edges of the media.
3. Tighten the screw using a small Phillips driver #1.
4. With a sample of your media, adjust the guides to the width of the media. The guides should just touch, but not restrict, the edges of the media.
5. Insert the media through the slot at the rear of the printer.
6. Run the media between the hangers and guides.
7. Close the top cover.

Using the Cutter Option

Printers that have a bezel with a motorized blade can dispense one or more forms that are then automatically cut from the media supply. This option cuts through continuous paper from rolls and liner between labels. Keep the cutter dry. Never use any solutions or solvents to clean the blade.

Use the ^MM command to activate the cutter and the ^LL command to set the form length and gap distance. See the ZPL II programmer's manual.





If the blade cuts through labels, adhesive can jam the cutter.

1. Turn OFF (O) printer power and unplug the power and interface cables before clearing the cutter.

2. After removing debris, plug in the power and interface cables, turn on the printer, then test for normal operation.

Printing on Linerless Labels

"Linerless labels" are a special label stock without a backing material or liner on the adhesive side. The media is wound upon itself with the adhesive on the back of the label in contact with the face of the label below.

Direct-thermal LP printers can handle linerless labels when modified with a unique, non-stick platen coated with silicone. Even so, adhesives and coatings can transfer to the media path including the platen and print head; this build-up can accumulated dust and debris. Maintaining a clean print head, media path and platen roller ensures proper operation. See the "Maintenance" section for cleaning instructions.

Linerless platens suffer wear more quickly than standard platens. Keep a new platen available as a spare and install it whenever the printer has significantly poorer performance, print quality or media handling. If sticking or jamming continues even after cleaning, you must replace the platen. See the "Maintenance" section for platen replacement instructions.

Cleaning

When you clean the printer, use one or more of the following supplies that best suits your needs:

DESCRIPTION
Cleaning pens (12)
Cleaning swabs (25)
Cleaning cards, 4-in wide (25)
Save-a-Print Head film, 4-in wide (3)

The cleaning process takes just a couple of minutes using the steps outlined below.

Printer Part	Method	Interval
Print head	Let the print head to cool for one minute, then use a new cleaning pen to swab the print elements (the thin gray line on the print head) from end to end. ***NOTE:*** *You do not have to turn off the printer to do this.* If print quality remains poor after cleaning, try the Save-a-Print Head cleaning film to remove buildup without damaging the print head. Call your authorized reseller for more information.	As necessary or after every five rolls of media
Platen roller	Manually rotate the platen roller. Clean it thoroughly with 70% isopropyl alcohol and a cleaning swab, cleaning card, or lint-free cloth.	
Peel bar	Clean it thoroughly with 70% isopropyl alcohol and a cotton swab.	As needed
Tear bar	Clean it thoroughly with 70% isopropyl alcohol and a cotton swab.	
Exterior	Water-dampened cloth	
Interior	Brush or air blow	
Cutter	Use tweezers to remove scraps	

Adhesives and coatings of media can over time transfer onto the printer components along the media path including the platen and print head. This build-up can accumulate dust and debris. Failure to clean the print head, media path and platen roller could result in inadvertent loss of labels, label jams and possible damage to the printer.

Print Head Considerations

Always use a new cleaning pen on the print head (an old pen carries contaminants from its previous uses that may damage the print head).

Media Path Considerations

Use a cleaning swab or pen to remove debris, dust or crust that has built-up on the holders, guides and media path surfaces.

1. Use the alcohol in the cleaning swab or pen to soak the debris so that it breaks up.
2. Wipe the area with the cleaning swab or pen to remove the debris.
3. Discard the cleaning swab or pen after use.

Cleaning Card Considerations

Use a cleaning card to remove debris that has built-up on the platen. Avoid scrubbing or vigorously rubbing the platen; otherwise, the surface could be damaged.

1. Open the printer and remove labels.
2. Place the cleaning card into the label path so that it is under the guides and it extends between the print head and platen roller.
3. Close and latch the printer.
4. With the power switch on, press the feed switch to move the cleaning card through the printer.
5. Discard the card after use.

Platen Considerations

The standard platen (drive roller) normally does not require cleaning. Paper and liner dust can accumulate without effecting print operations. Contaminates on the platen roller can damage the print head or cause the media to slip when printing. Adhesive, dirt, general dust, oils and other contaminates should be cleaned immediately off the platen.

However, the non-stick platen roller on *linerless* media printers requires frequent cleaning to keep adhesive buildup from occurring and transferring to the print head and the media path. Keep a new platen available as a spare and install it whenever the printer has significantly poorer performance, print quality or media handling. If sticking or jamming continues even after cleaning, you must replace the platen.

The platen can be cleaned with a fiber-free swab (such as a Texpad swab) or a lint free, clean, damp cloth very lightly moistened with medical grade alcohol (70% pure or better).

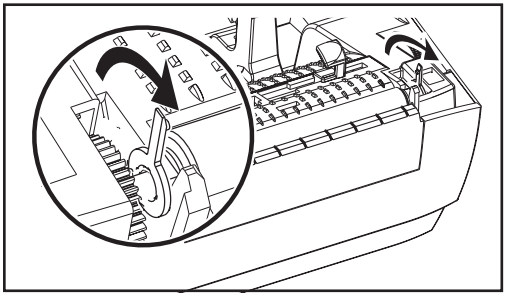
1. Open the media door and remove the media.
2. Clean the platen surface with the alcohol moistened swab. Rotate the platen while swabbing. Repeat this process two to three times with a new swab to remove residual contaminates. Adhesives and oils, for example, may be thinned by the initial cleaning but not completely removed.
3. Discard the cleaning swab or pen after use.

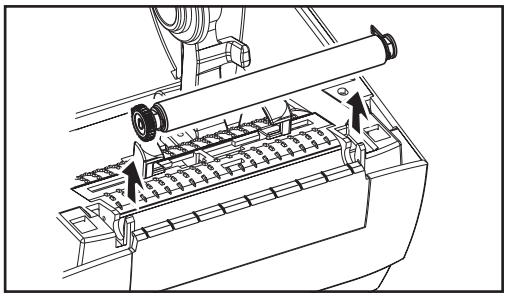
Allow the printer to dry for one minute before loading labels.

Lubrication

No lubricating agents of any kind should be used on this printer! Some commercially available lubricants, if used, will damage the finish and the mechanical parts inside the printer.

Replacing the Platen



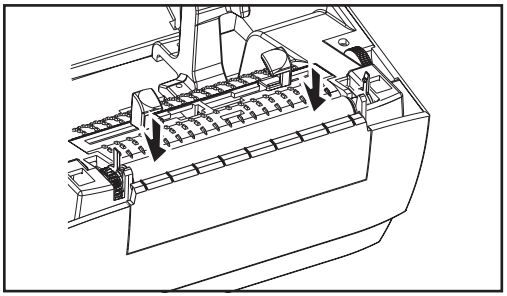


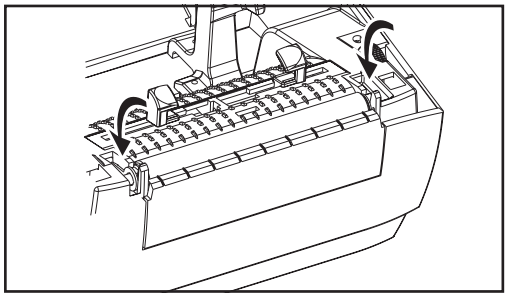
Removal

Open the printer and remove any media.

1. Using a pointed stylus (such as tweezers, small slot-head screwdriver, or razor-knife), unhook the tabs on the right and left sides. Then rotate them forward.

2. Lift the platen out of the printer's bottom frame.





Assembly

Make sure the right bearing is on the shaft of the platen.

1. Align the platen with the gear to the left and lower it into the printer's bottom frame.

2. Rotate the tabs back and snap them into place.

Replacing the Print Head

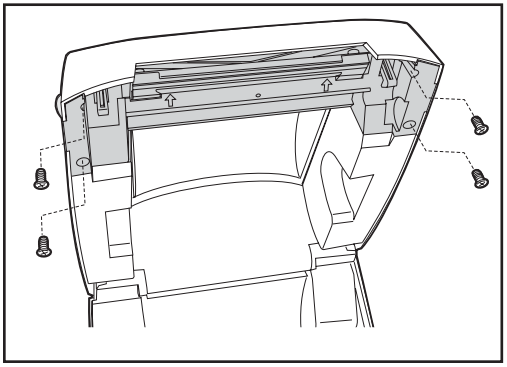
In the event you need to replace the print head, read the procedure for your model of printer—either direct-thermal LP or thermal-transfer TLP—and review the removal and installation steps before actually replacing the print head.

Prepare your work area by protecting against static discharge. Your work area must be static-safe and include a properly grounded conductive cushioned mat to hold the printer and a conductive wrist strap for yourself.

NOTE: Turn the printer power off and unplug the power cord before replacing the print head.

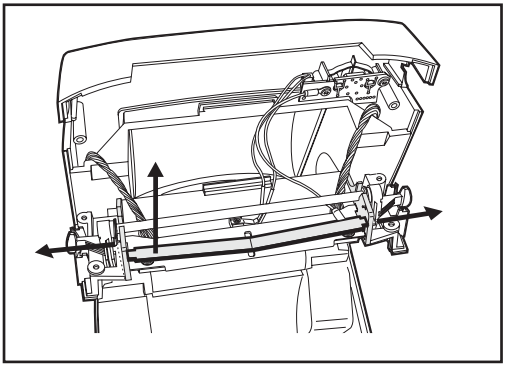
Direct-Thermal LP Model

Before following the steps in this procedure, open the printer by pulling the release latches forward then lifting the top cover.

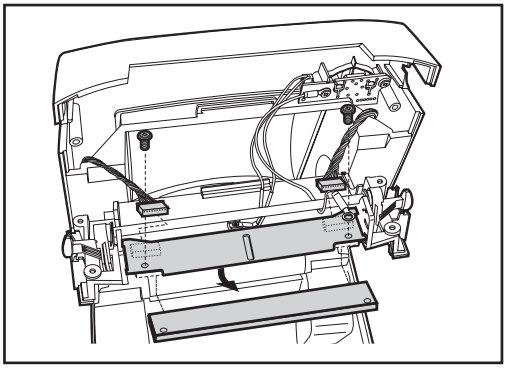


Removal

1. Use a #1 Phillips driver to loosen the four screws that hold the latch frame to the top case.

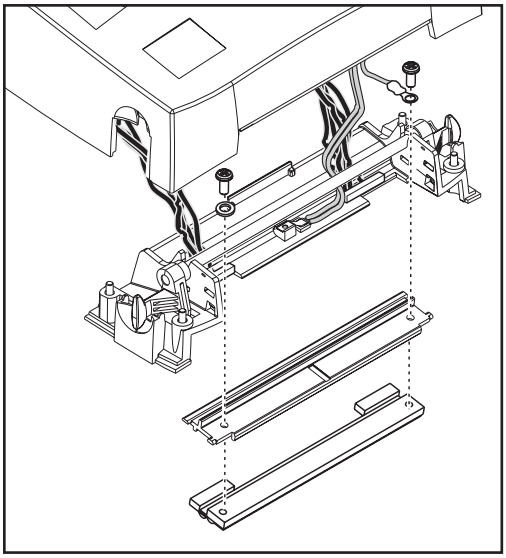


2. Grasp the print head spring and pull it to the left; then, slide it free of the latch frame.



3. Gently pull the wire bundles from the print head.

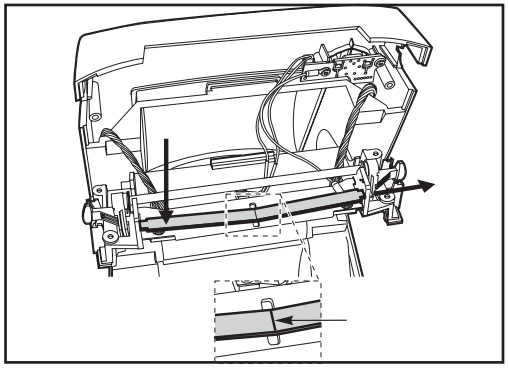
4. Use a #1 Phillips driver to loosen the two screws and washers and release the print head from the latch frame and bracket.



Assembly

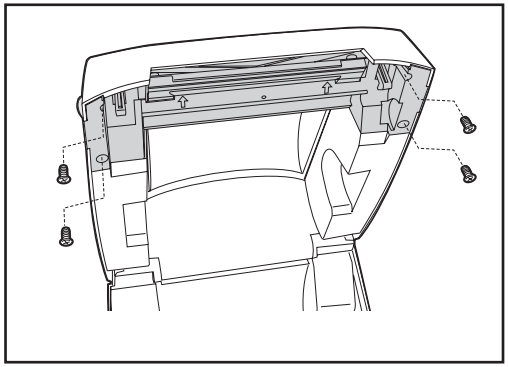
1. Route the print head cables under the latch shaft and plug the print head cables into the receptacles on the print head.

2. Hold the print head against the bracket while replacing the screws and washers; attach the ground wire using the right screw and washer. Use a #1 Phillips driver to tighten the screws.



3. Slip the left end of the print head spring into the left side of the latch bracket; then slide the right end into the other side. The angle of the "V" fits into the indent on the top of the print head bracket.

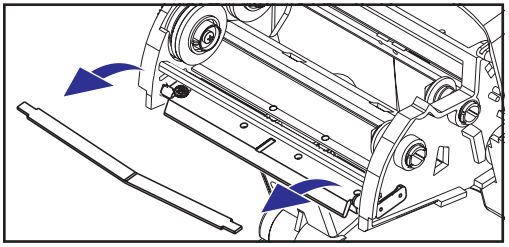
4. Align the latch brack up to the top case and ensure that the cable are not bent or pinched.

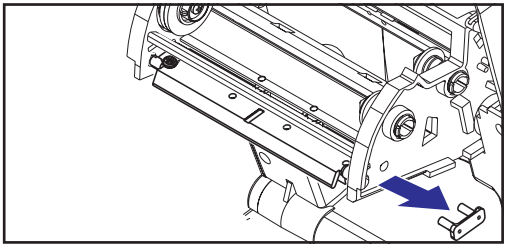


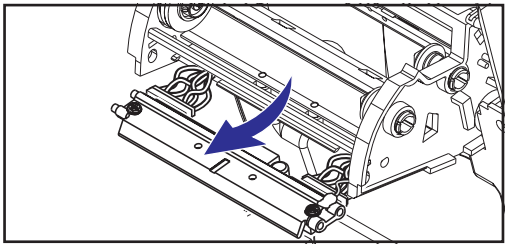
5. Replace the four screws that hold the latch bracket to the top case and use a #1 Phillips driver to tighten them.

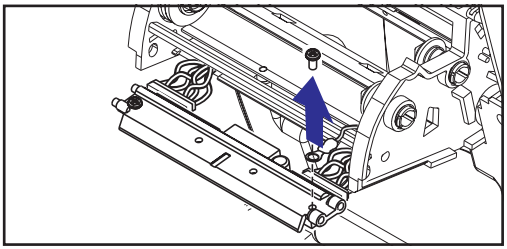
6. Clean the print head with the cleaning pen.

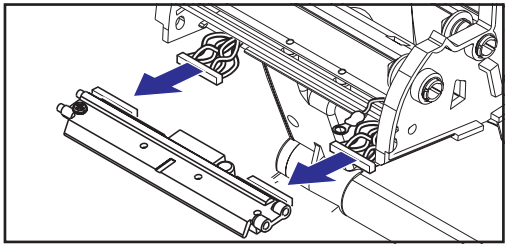
Reload media and ribbon. Plug in the power cord, turn on the printer and run an automatic or manual calibration to ensure proper function.









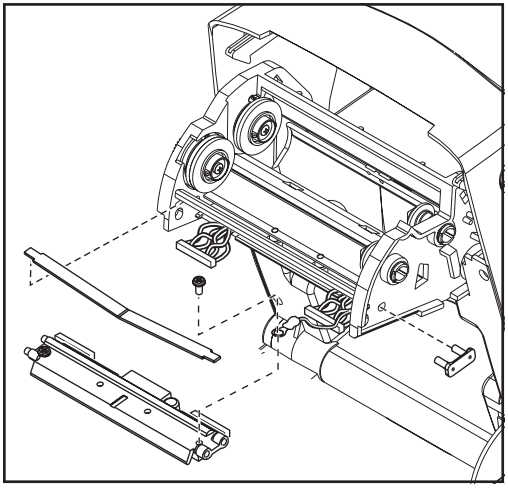


Before following the steps in this procedure, open the printer by pulling the release latches forward then lifting the top cover. Remove any ribbon from the carriage.

Removal

1. Grasp the print head spring and pull it to the left; then, slide it free of the carriage.
2. Use the spring to pry the print head clip off the right side of the carriage.
3. Pull the print head and bracket forward.
4. Use a #2 Phillips driver to remove the screw that holds the ground wire.
5. Unplug both bundles of print head wires from their connectors.

Assembly



The new print head comes with the clip and ground screw attached.

1. Align the print head and bracket to plug the left and right connectors into the black and white wire bundles.

2. Attach the ground wire and secure it with the screw. Use a #2 Phillips driver to tighten it.

3. Insert the bracket pegs into the left side of the carriage.

4. Align the right side of the bracket and insert the print head clip through the right side of the ribbon carriage into the bracket.

5. Slip the left end of the print head spring into the left side of the ribbon carriage; then slide the right end into the other side. The angle of the "V" fits into the indent on top of the print head bracket.

6. Clean the print head with the cleaning pen.

Reload media and ribbon. Plug in the power cord, turn on the printer and run an automatic or manual calibration to ensure proper function.

What the Status Light is Telling You		
Status LED Condition and Color	Printer Status	For a Resolution, Refer to number:
Off	Off	1
Solid Green	On	2
Flashing Amber	Stopped	3
Flashing Green	Normal Operation	4
Flashing Red	Stopped	5
Double Flashing Green	Paused	6
Solid Amber	Various	7
Alternately Flashing Green and Red	Needs Service	8

Resolutions

1. The printer is not receiving power.

- Have you turned on the printer power?
- Check power connections from the wall outlet to the power supply, and from the power supply to the printer.

2. The printer is on and in an idle state.

- No action necessary.

3. The printer has failed its power on self test (POST).

- If this error occurs right after you turn on the printer, contact an authorized reseller for assistance.

There is a shortage of memory.

- If this error occurs after you have been printing, turn the printer power off and on. Then, resume printing.

4. The printer is receiving data.

- As soon as all of the data has been received, the status LED will turn green; then, the printer will automatically resume operation.

5. Either the media or ribbon is out.

- Load a roll of media, following the instructions in "Loading the Media" on page 9. Then, press the feed button to resume printing.
- Load a roll of ribbon, following the instructions in "Loading the Ribbon" on page 12. Then, press the feed button to resume printing.

The print head is open.

- Close the top cover. Then, press the feed button to resume printing.

6. The printer is paused.

- Press the feed button to resume printing.

7. The print head is under temperature.

- Continue printing while the print head reaches the correct operating temperature.

The print head is over temperature.

- Printing will stop until the print head cools to an acceptable printing temperature. When it does, the printer will automatically resume operation.

8. FLASH memory is not programmed.

- Return the printer to an authorized reseller.

Print Quality Problems

No print on the label.

- You must use the correct media for the method of printing you require. When printing without a ribbon, you must use direct thermal media. When using ribbon, you must use thermal transfer media. The printer's ribbon sensor detects motion of the supply spindle.
- Is the media loaded correctly? Follow the instructions in “Loading the Media” on page 9.

The printed image does not look right.

- The print head is dirty. Clean the print head according to the instructions on page 35.
- The print head is under temperature.
- Adjust the print darkness and/or print speed. Refer to the six-flash sequence in “Feed Button Modes” on page 45, or the ^PR and ~SD commands in the ZPL II Programming Guide.
- The media being used is incompatible with the printer. Be sure to use the recommended media for your application, and always use Zebra-approved labels and tags.

There are long tracks of missing print (blank vertical lines) on several labels.

- The print head is dirty. Clean the print head according to the instructions on page 35.
- The print head elements are damaged. Replace the print head (see “Replacing the Print Head” on page 34).

The ribbon sensor settings did not print.

- The printer is set for direct thermal printing; use the ^XA^MTT^XZ command to reset the printer for thermal transfer printing and calibrate again.

The printing does not start at the top of the label, or misprinting of one to three labels.

- The media may not be threaded under the media guides. Refer to "Loading the Media" on page 9.
- The printer needs to be calibrated. Refer to "Auto Calibration" on page 13.
- The correct media sensor may not be activated. Manual calibration selects the media sensing method for the labels being used (refer to the ^MN command in the ZPL II Programming Guide).
- Verify that the Label Top (^LT) command is correctly set for your application (consult the ZPL II Programming Guide).

A label format was sent to, but not recognized by, the printer.

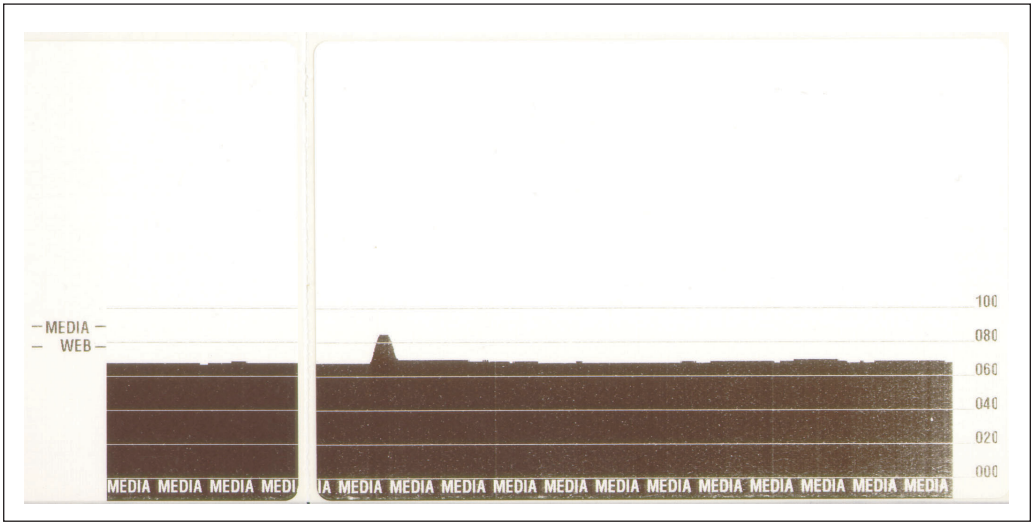
- Is the printer in pause mode? If so, press the feed button.
- If the status LED is on or flashing, refer to "What the Status LED is Telling You" on page 37.
- Make sure the data cable is correctly installed.
- A communications problem has occurred. First, make sure that the correct communications port on the computer is selected. Refer to "Communicating with the Printer" on page 18.

Manual Calibration

Manual calibration is recommended whenever you are using pre-printed media or if the printer will not correctly auto calibrate.

1. Make sure media is loaded.
2. Turn on the printer power.
3. Press and hold the feed button until the green status LED flashes once, then twice. Release the feed button.
4. The printer will set the media sensor for the label backing being used. After it is done making this adjustment, the roll will automatically feed until a label is positioned at the print head.
5. A profile of the media sensor settings (similar to the example below) will print. Upon completion, the printer will save the new settings in memory and the printer is ready for normal operation.
6. Press the feed button. One entire blank label will feed. If this does not happen, try defaulting (refer to the four-flash sequence in "Feed Button Modes" on page 45) and recalibrating the printer.

NOTE: Performing a manual calibration disables the auto calibration function. To return to auto calibration, default the printer (see the four-flash sequence in "Feed Button Modes" on page 45).

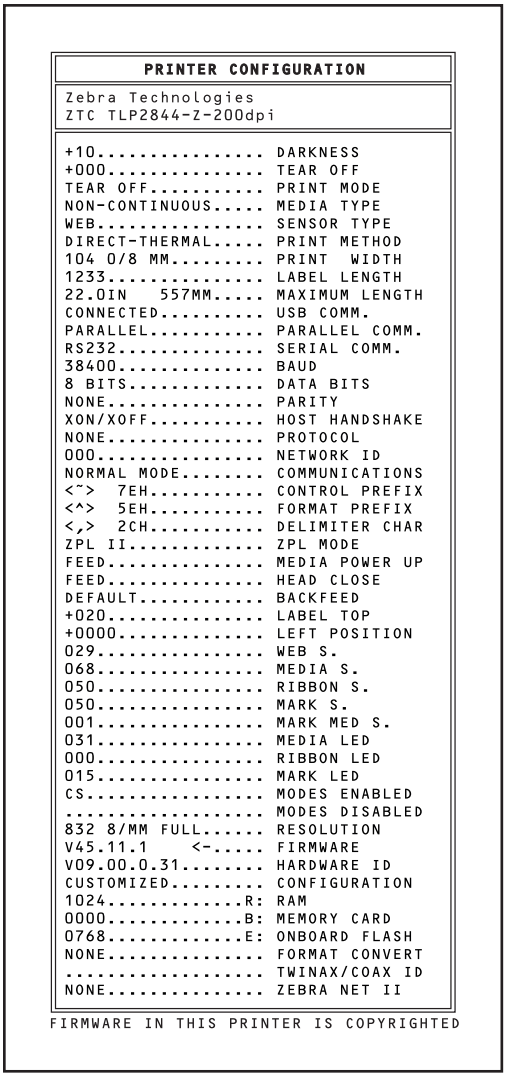


Troubleshooting Tests

Printing a Configuration Label

To print out a listing of the printer's current configuration, refer to the one-flash sequence in "Feed Button Modes" on page 45.

Recalibration



PRINTER CONFIGURATION

Zebra Technologies
ZTC TLP2844-Z-200dpi

+10	DARKNESS
+000	TEAR OFF
TEAR OFF	PRINT MODE
NON-CONTINUOUS	MEDIA TYPE
WEB	SENSOR TYPE
DIRECT-THERMAL	PRINT METHOD
104 0/8 MM	PRINT WIDTH
1233	LABEL LENGTH
22.0IN 557MM	MAXIMUM LENGTH
CONNECTED	USB COMM.
PARALLEL	PARALLEL COMM.
RS232	SERIAL COMM.
38400	BAUD
8 BITS	DATA BITS
NONE	PARITY
XON/XOFF	HOST HANDSHAKE
NONE	PROTOCOL
000	NETWORK ID
NORMAL MODE	COMMUNICATIONS
<~> 7EH	CONTROL PREFIX
<^> 5EH	FORMAT PREFIX
<,> 2CH	DELIMITER CHAR
ZPL II	ZPL MODE
FEED	MEDIA POWER UP
FEED	HEAD CLOSE
DEFAULT	BACKFEED
+020	LABEL TOP
+0000	LEFT POSITION
029	WEB S.
068	MEDIA S.
050	RIBBON S.
050	MARK S.
001	MARK MED S.
031	MEDIA LED
000	RIBBON LED
015	MARK LED
CS	MODES ENABLED
	MODES DISABLED
832 8/MM FULL	RESOLUTION
V45.11.1 <-	FIRMWARE
V09.00.0.31	HARDWARE ID
CUSTOMIZED	CONFIGURATION
1024R:	RAM
0000B:	MEMORY CARD
0768E:	ONBOARD FLASH
NONE	FORMAT CONVERT
	TWINAX/COAX ID
NONE	ZEBRA NET II

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

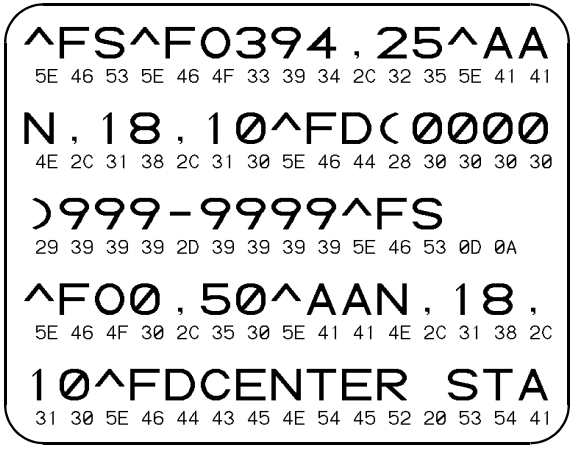
Recalibrate the printer if it starts to display unusual symptoms, such as skipping labels. See "Auto Calibration" on page 13.

Resetting the Factory Default Values

Sometimes, resetting the printer to the factory defaults solves some of the problems. Follow the four-flash sequence instructions in “Feed Button Modes” on page 45.

Communications Diagnostics

If there is a problem transferring data between the computer and printer, try putting the printer in the communications diagnostics mode. The printer will print the ASCII characters and their respective hexadecimal values (a sample is shown below) for any data received from the host computer. To find out how, refer to the power off mode procedure in “Feed Button Modes” on page 45.



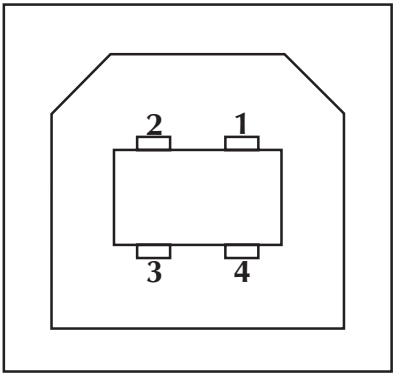
Feed Button Modes

Power Off Mode (Communications Diagnostics Mode)	
With the printer power off, press and hold the feed button while you turn on the power. The printer prints out a listing of its current configuration. After printing the label, the printer will automatically enter a diagnostic mode in which the printer prints out a literal representation (see Figure 23) of all data subsequently received. To exit the diagnostic mode and resume printing, turn off and then turn on the printer.	
Power On Modes	
With the printer power on and top cover closed, press and hold the feed button for several seconds. The green status LED will flash a number of times in sequence. The explanation at the right (Action) shows what happens when you release the key after the specific number of flashes.	
Flash Sequence	**Action**
*	A configuration label prints.
* **	The media sensor calibrates and a media sensor profile prints (see "Manual Calibration" on page 42).
* ** ***	To reset the communication parameters. Press and release the feed button while the LED rapidly flashes amber and green. For autobaud synchronization: Send a ZPL II format to the printer while the LED rapidly flashes amber and green. When the printer and host are synchronized, the LED changes to solid green. NOTE: No labels will print during autobaud synchronization.
* ** *** ****	Resets the factory defaults, auto calibrates, and saves settings into memory.
* ** *** **** *****	The print width calibrates. While the status LED alternately flashes green and amber, a series of stacking rectangles print on the label. When the rectangle prints to the outer edges of the label, press and release the feed button. The label width and current communication parameters will be saved into memory.
* ** *** **** ***** ******	The print darkness calibrates. A series of nine samples print, starting with the lightest and ending with the darkest image. When the desired print darkness is achieved, press and release the feed button. The print darkness will be saved into memory.
If the feed button remains pressed after a 7-flash sequence, the printer will ignore the button when it is released.	

Interfaces

Universal Serial Bus (USB) Connector

The figure below displays the cable wiring required to use the printer's USB interface.



Pin	Signal
1	Vbus - N/C
2	D-
3	D+
4	Ground
Shell	Shield/ Drain Wire

For printer supported operating systems and drivers, see the software and documentation CD or visit the Zebra printer web site at:

http://www.zebra.com

For information on the USB interface, go to the USB web site at:

Http://www.usb.org

Parallel Interface

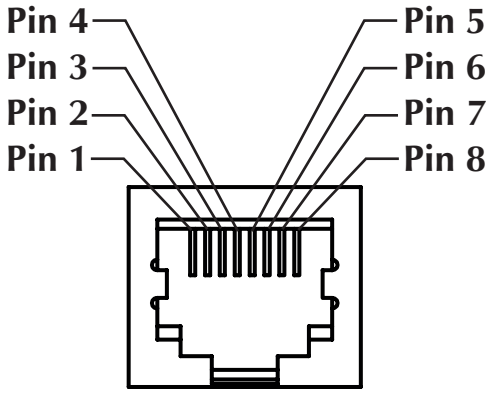
The maximum current available through the interface port is not to exceed a total of 0.75 amps.

Pin No.	Description
1	NStrobe/Host Clk
2-9	Data Bits 1-8
10	nACK/PtrClk
11	Busy/Per Busy
12	PError/ACK Dat Req.
13	Select/Xflag
14	NAuto Fd/Host Busy
15	Not Used
16-17	Ground
18	+5 V @ 0.75 A Fused
19-30	Ground
31	nInit
32	NFault/nData Avail.
33-34	Not Used
35	+5 V throught 1.8 K Ohms Resistor
36	NSelectin/1284 active

ZebraNet® PrintServer II™ for Ethernet Networks

This interface uses an RJ-45 straight-through cable type. The table below provides the pinout assignments.

Signal	Pin	Pin	Signal
Tx+	1	1	Tx+
Tx-	2	2	Tx-
Rx+	3	3	Rx+
---	4	4	---
---	5	5	---
Rx-	6	6	Rx-
---	7	7	---
---	8	8	---



Looking into the Printer's RJ-45 Modular Connector

You can refer to the *ZebraNet® PrintServer II™ for Ethernet Networks Installation and Operation Guide* (part number 46716L) for details regarding this interface.

Serial (RS-232) Connector

Pin No.	Description
1	Not used
2	RXD (receive data) input to the printer
3	TXD (transmit data) output from the printer
4	DTR (data terminal ready) output from the printer -- controls when the host may send data
5	Chassis ground
6	DSR (data set ready) input to the printer
7	RTS (request to send) output from the printer -- always in the ACTIVE condition when the printer is turned on
8	Not Used
9	+5 V @ 0.75 A fused

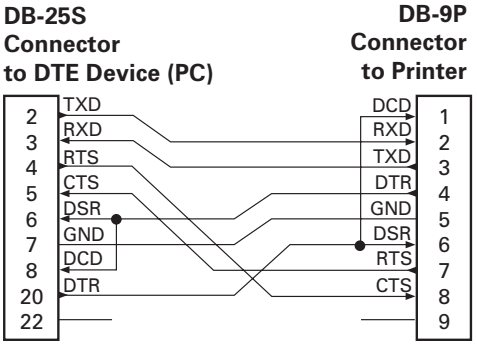
The maximum current available through the serial and/or parallel port is not to exceed a total of 0.75 Amps.

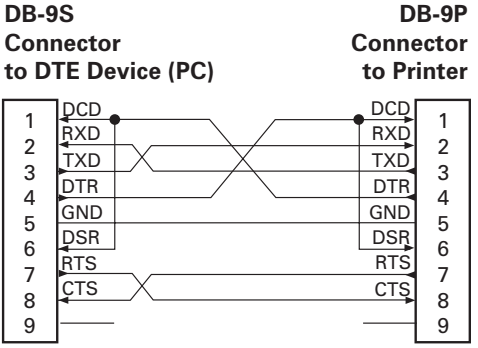
When XON/XOFF handshaking is selected, data flow is controlled by the ASCII control codes DC1 (XON) and DC3 (XOFF). The DTR control lead will have no effect.

Interconnecting to DTE Devices —The printer is configured as data terminal equipment (DTE). To connect the printer to other DTE devices (such as the serial port of a personal computer), use an RS-232 null modem (crossover) cable.

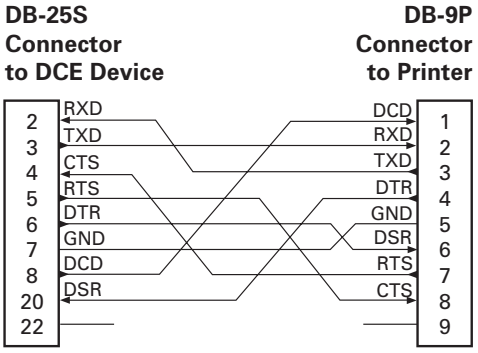
Interconnecting to DCE Devices —When the printer is connected via its RS-232 interface to data communication equipment (DCE) such as a modem, a STANDARD RS-232 (straight-through) interface cable must be used.

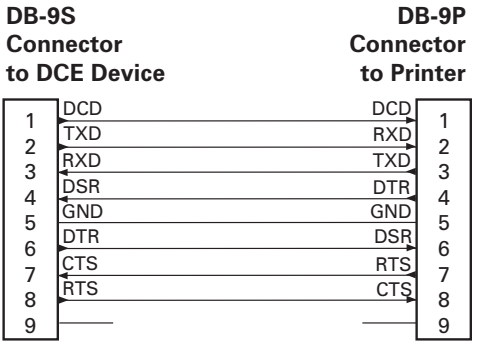
Connecting the Printer to a DTE Device





Connecting the Printer to a DCE Device





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